Final Photo Documentation Update for Proposition 13 Grant Agreement No. 04-067-559-0 San Diego Region Woodside Avenue Extended Detention Basin

Prepared For:

State Water Resources Control Board

July 2006

Final Photo Documentation Update
For
Proposition 13
Grant Agreement No. 04-067-559-0
San Diego Region
Woodside Avenue Extended Detention Basin

Prepared For:

State Water Resources Control Board

Prepared By:

Weston Solutions, Inc.
2433 Impala Drive
Carlsbad, California 92008

July 2006

TABLE OF CONTENTS

INTRODUCTION 1
PHOTO DOCUMENTATION 4
Station 1 4
Station 2 5
Station 3 5
Station 4 6
Station 5 7
Station 6 8
Station 7 9
Station 8 9
Station 9 10
Station 10 10
Station 11 11
SEDIMENTATION IN PRIMARY INFLUENT CHANNEL (INFLUENT NO. 1) 12
SEDIMENTATION IN SECONDARY INFLUENT PIPE 13
LOW FLOW EFFLUENT PIPE (EFFLUENT NO. 1) 14
VEGETATION ESTABLISHMENT 15
CONCLUSION 16

INTRODUCTION

The County of San Diego received Proposition 13 funding from the State Water Resources Control Board (SWRCB) to perform conveyance restoration and construct an extended detention basin (EDB) to treat urban runoff from the Winter Gardens sub-watershed before discharging into the San Diego River in the unincorporated community of Lakeside. One component of this conveyance restoration is photo documentation to provide a qualitative assessment of the effectiveness of this best management practice (BMP). This report represents a preliminary update of the status of this project through photographs.

The drainage basin at the downstream end of the EDB encompasses 889 acres, or 1.26 square miles and has a 100-year discharge of 976 cubic feet per second. The constructed EDB and removal of the existing cobble channel BMP are designed to act as a demonstration for the effectiveness of similar BMP's at removing pollutants from water systems. A monitoring component of the project now in place will provide hard evidence of the pollutant removal capabilities. An outreach component will address the dissemination of information to interested parties, as well as education of students, teachers, community groups, and business leaders about the benefits of wetlands to the environment. This project addresses non-point source (NPS) pollution from the community. In addition, this project helps to enhance and restore beneficial uses within the San Diego River Watershed. The San Diego River is listed on the Clean Water Act (CWA) Section 303 (d) list for high bacterial indicators, phosphorous, low dissolved oxygen, and total dissolved solids. These pollutants are characteristic of urban runoff from residential areas.

This project was constructed on an empty lot located on the south side of Woodside Avenue. The drainage area upstream of the Woodside Avenue site is primarily urban, characterized by a large quantity of impervious area and development. The majority of storm flows from this area are conveyed into the project site via a large concrete channel. Historically, runoff from the concrete channel was conveyed through the project site in a concrete (cobble) channel that ran along the southern edge of the property before turning north and flowing along the western side of the property. From here, flow was, and is currently, directed through a series of underground storm drains, open channels, and culverts before discharging into Los Coches Creek just upstream of it's confluence with the San Diego River.

The *Woodside Avenue Water Quality Basin* project is intended to provide water quality treatment to storm flows and nuisance urban runoff passing through the site before they reach Los Coches Creek and the San Diego River.

The water quality basin as shown in Figure 1, on the following page, receives storm water and nuisance urban runoff from (Influent1) an eighteen foot wide by ten foot tall rectangular concrete channel in the southeast corner of the site, and (Influent 2) a 36" culvert that discharges in the southwest corner of the site. Storm water and nuisance urban runoff are directed to a sediment forebay that is separated from the extended detention basin by a gabion wall. Runoff that flows through the gabion wall then enters the detention basin (through a low-flow pilot channel under low flow conditions). Outflow from the detention basin is controlled by a 12" low-flow orifice (effluent No. 1) up to the design storm and then through the basin spillway as shown on Figure 1. Additionally, an 18" manually operated emergency bypass exists to drain the basin if the primary low-flow orifice becomes clogged. The water quality basin is sized to capture the maximum extent practicable (MEP) of the water quality volume based on horizontal and vertical constraints through the project site.

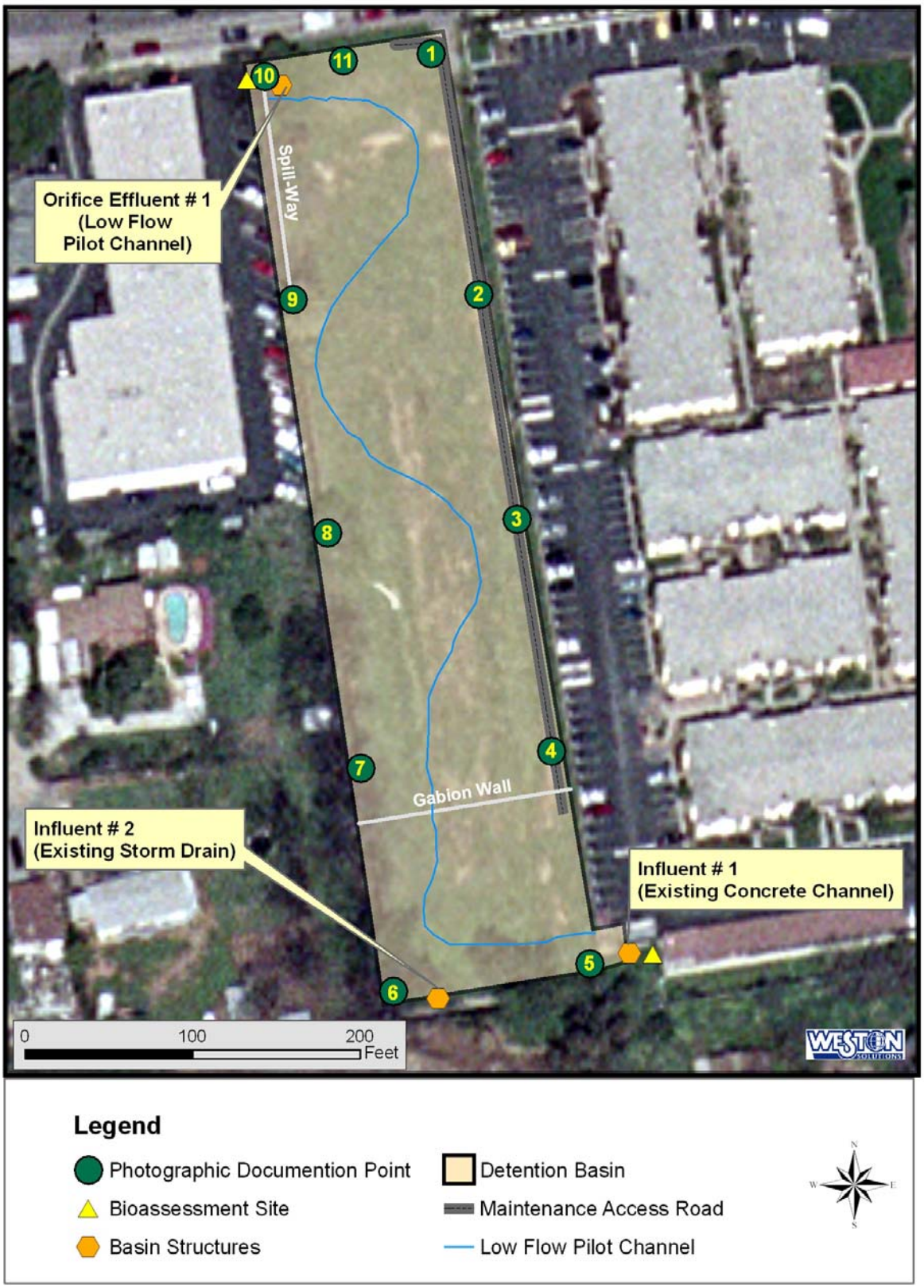

Figure 1. Photo Documentation Points

PHOTO DOCUMENTATION

Eleven sites were established as photo documentation points prior to construction of the EDB. These sites are represented in Figure 1 on the previous page. Ten of the eleven sites are evenly spaced along the perimeter of the east and west sides of the EDB providing five stations on the east side, and five stations on the west side. Additionally, Station 11 is positioned in the center of the north side to provide a view of the interior of the EDB. Photo points were established to document the success of re-vegetation efforts, sedimentation within the fore-bay area, and overall basin condition. A pre-construction survey was conducted to document pre-project conditions on June 22, 2005. Photo documentation was conducted to document post-construction conditions on January 18, 2006. Additionally a number of other pictures have been taken at various times of various features of the EDB. These pictures are presented in this report, where applicable, to demonstrate various problems, and successes that have been encountered to date, with the EDB. Cardinal directions referenced in this document are approximate, not exact.

Station 1

Station 1 is located in the northeast corner of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18. 2006.

Station 1, pre-construction looking south

Station 1, pre-construction, looking southwest

Station 1, post-construction looking south

Station 1, post-construction, looking southwest

Station 2

Station 2 is located 142 ½' south of Station 1 along the eastern perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 2, pre-construction looking west

Station 2, post-construction looking west

Station 3

Station 3 is located 142 ½' south of Station 2, and 285' south of Station 1, along the eastern perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 3, pre-construction looking west

Station 3, post-construction looking west

Station 4

Station 4 is located 142 ½' south of Station 3, and 142 ½' north of Station 5, along the eastern perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 4, pre-construction looking west

Station 4, post-construction looking west

Station 5

Station 5 is located in the southeast corner of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 5, pre-construction looking west

Station 5, pre-construction, looking northwest

Station 5, post-construction looking west

Station 5, post-construction, looking northwest

Station 6

Station 6 is located in the southwest corner of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 6, pre-construction looking north

Station 6, pre-construction, looking northeast

Station 6, post-construction looking north

Station 6, post-construction, looking northeast

Station 7

Station 7 is located 142 ½' north of Station 6, along the western perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 7, pre-construction looking east

Station 7, post-construction, looking east

Station 8

Station 8 is located 142 ½' north of Station 7 and 285' north of Station 6, along the western perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 8, pre-construction looking east

Station 8, post-construction, looking east

Station 9

Station 9 is located 142 ½' north of Station 8 and 142 ½' south of Station 10, along the western perimeter of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006. The post-construction photo displayed below is taken from Station 10, looking past Station 9, which is located at the end of the spillway in the picture.

Station 9, pre-construction looking south

Station 10, post-construction, looking south toward Station 9

Station 10

Station 10 is located in the northwest corner of the EDB. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 10, pre-construction looking southeast

Station 10, post-construction, looking southeast

Station 11

Station 11 is located in the center of the north side of the EDB. It is 62 ½' from Station 1 and Station 10. The photos below represent pre-construction conditions on June 22, 2005, and conditions on January 18, 2006.

Station 11, pre-construction looking south

Station 11, post-construction, looking south

SEDIMENTATION IN PRIMARY INFLUENT CHANNEL (INFLUENT NO. 1)

During the initial site reconnaissance the primary influent channel (identified as influent No. 1) appeared clean of debris and sediment. However, it was later determined that the channel had recently been cleaned. Following construction of the EDB during the initial attempt to install monitoring equipment, problems were encountered due to heavy sediment build up, heavy vegetative growth, and rip-rap in the basin holding water in the concrete channel. The channel was cleaned and rip-rap lowered slightly to allow for installation of monitoring equipment. In order to compensate for these obstacles and obtain accurate flow measurements it became necessary to restrict influent water flow by use of sand bags. Pictures below document this process over time. Note the re-growth already occurring in the final picture.

Primary Influent, Initial Site Reconnaissance

Primary Influent, Initial Attempt to Install

Primary Influent, After Sediment Removal

Primary Influent, After Installation

SEDIMENTATION IN SECONDARY INFLUENT PIPE

During the initial site reconnaissance the secondary influent pipe (influent No. 2) appeared clean of debris and sediment. However, following construction of the EDB during the initial attempt to install monitoring equipment, problems were encountered due to heavy sediment build up, and rip-rap in the basin holding water in the influent pipe. The rip-rap was lowered slightly to allow for better drainage. However, once the pipe was inspected for equipment installation it was discovered that the bottom section of this pipe had very little slope and sediment build up may still be a concern. In order to compensate for these obstacles and obtain accurate flow measurements it was necessary to move the monitoring equipment further up the pipe than anticipated to an area of sufficient slope. This resulted in one small influent pipe from a very limited drainage area that will not be represented in flow measurements and analytical parameters. Pictures below document this process over time.

Secondary Influent, Initial Site Reconnaissance

Secondary Influent, Initial Installation Attempt

Secondary Influent, Sediment Build Up

Secondary Influent, After Rip-Rap Lowering

LOW FLOW EFFLUENT PIPE (EFFLUENT NO. 1)

Following construction during the initial attempt to install monitoring equipment in the 12" effluent pipe (effluent No. 1) it was observed that water pooled outside of the EDB in the spillway. This resulted in low velocity flows and sediment buildup in the effluent pipe. Following meetings with County of San Diego personnel and Rick Engineering, the effluent structure was altered so flows did not pool in the spillway and reduce velocity resulting in sediment buildup. Additionally an 18" emergency bypass pipe was added to the effluent structure. It has been observed that leaves and other organic debris accumulate against the effluent grate which restricts outflow and raises the water level in the EDB. Additionally, following construction of the modifications the emergency bypass was inadvertently left open. Flows through this bypass are not captured by monitoring equipment so the bypass was then closed so that dry and wet weather flows through the EDB could be characterized and assessed. Pictures below document this process over time.

Effluent, Sediment and Low Velocity

Effluent, Pooled Water in Spillway

Effluent, After Equipment Installation

Effluent, Debris and Open Emergency Bypass

VEGETATION ESTABLISHMENT

Following construction hydro-seeding was conducted to establish vegetation within the EDB. Photo documentation pictures in previous sections show pre-existing and current conditions. Pictures below represent vegetation growth at various stages within the EDB.

Vegetation, October 31, 2005

Vegetation, November 11, 2005

Vegetation, January 3, 2006

Vegetation, January 18, 2006

CONCLUSION

Photo documentation will continue during selected dry and wet weather monitoring events. Every effort will be made to keep the same photo documentation points. Additionally, problems and successes encountered during the assessment of this BMP will be photographically documented. This photo documentation update represents the beginning of this assessment. A complete photo documentation report will be prepared as part of the Final Water Quality Basin Performance Report.